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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/808,477

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Hideki Ogura

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01/20/2006

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EXAMINER

VO, ANH T N

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/808,477	Applicant(s) OGURA ET AL.	
	Examiner Anh T.N. Vo	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/9/2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The references cited on PTO 1449 have been considered.

### ***Specification***

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Double patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2 and 4-13 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of Inoue et al. (U.S. Pat. 6,773,099) in view of Usui (US Pat. 6,837,575).

Inoue et al. disclose in claims 1-18 a liquid container comprising:

- an accommodation portion to define a liquid accommodation space (column 61, lines 19-20);
- a liquid supply portion to supply a liquid accommodated in the accommodation space to an outside (column 61, lines 21-24);
- a mechanism to maintain or expand a volume of the accommodation space (column 61, lines 30-31);
- a one-way valve to allow an introduction of a gas from the outside into the accommodation space and prevent the liquid and gas from flowing out of the accommodation space to the outside (column 61, lines 25-28); and
- wherein the one-way valve includes: a flexible sheet situated between a first chamber on the accommodation space side and a second chamber on the outside and having an area to secure a predetermined level of freedom of deflection; and a valve mechanism to perform an open-close operation accompanied by a deflection of the flexible sheet, the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber and the second chamber (column 63, lines 4-7, lines 15-20 and lines 36-44).

However, Inoue et al. do not disclose that the area of the flexible sheet is formed with an undulated portion whose undulated form is maintained in at least an operation range of the valve

Art Unit: 2861

mechanism; wherein the area of the flexible sheet is formed with an undulated portion, the undulated portion rising or a sinking toward the first chamber side or second chamber side; wherein the area of the flexible sheet is situated along a circumference of the valve closing member; an ink jet cartridge having the ink tank and an ink jet print head to eject ink; an ink jet printing apparatus for printing an image by using the ink tank and an ink jet print head to eject ink and by ejecting ink supplied from the ink tank from the ink jet print head; and

- after preparing the liquid container provided with the one-way valve, injecting a liquid into the accommodation portion by a hole .

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Nevertheless, Usui discloses in Figures 1-7 a differential pressure valve mechanism of an ink supply unit comprising:

- the area of the flexible sheet (1) is formed with an undulated portion (7) whose undulated form is maintained in at least an operation range of the valve mechanism (12, 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7), the undulated portion (7) rising or a sinking toward the first chamber side (10) or second chamber side (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the area of the flexible sheet (2) is situated along a circumference of the valve closing member (5) (Figures 2A-2B);
- an ink jet cartridge (ink cartridge) having the ink tank (41) and an ink jet print head (44) to eject ink (Figure 7, column 4, lines 1-8);
- an ink jet printing apparatus for printing an image by using the ink tank (41) and an ink jet print head (44) to eject ink and by ejecting ink supplied from the ink tank (41) from the ink jet print head (44) (Figure 7); and
- after preparing the liquid container (41) provided with the one-way valve (1), injecting a liquid into the accommodation portion (40) by a hole (42) (Figure 7).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Usui into the Inoue et al. ink cartridge for the purpose of constituting a membrane valve at a high accuracy of the bending portion that affects elasticity of the membrane valve greatly to adjust the very small change of pressure in an ink cartridge (column 1, lines 44-52).

Claims 1-2 and 4-13 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of Kuwabara et al. (U.S. Pat. 6,976,753) in view of Usui (US Pat. 6,837,575).

Kuwabara et al. disclose in claims 1-18 a liquid container comprising:

- an accommodation portion to define a liquid accommodation space (column 17, lines 31-32);
- a liquid supply portion to supply a liquid accommodated in the accommodation space to an outside (column 17, lines 34-35);
- a mechanism (movable member) to maintain or expand a volume of the accommodation space (column 17, lines 30-33);
- a one-way valve to allow an introduction of a gas from the outside into the accommodation space and prevent the liquid and gas from flowing out of the accommodation space to the outside (column 17, lines 36-39);
- an ink jet cartridge having the ink tank and an ink jet print head to eject ink (column 18, lines 30-33); and
- an ink jet printing apparatus for printing an image by using the ink tank and an ink jet print head to eject ink and by ejecting ink supplied from the ink tank from the ink jet print head (44) (column 18, lines 27-34).

However, Kuwabara et al do not disclose that a flexible sheet situated between the first chamber and the second chamber and having an area to secure a predetermined level of freedom of deflection; a valve mechanism to perform an open-close operation accompanied by a deflection of the flexible sheet, the degree of the flexible sheet deflection conforming to a

Art Unit: 2861

pressure difference between the first chamber and the second; wherein the area of the flexible sheet is formed with an undulated portion whose undulated form is maintained in at least an operation range of the valve mechanism; wherein the area of the flexible sheet is formed with an undulated portion, the undulated portion rising or a sinking toward the first chamber side or second chamber side; wherein the valve mechanism includes a valve closing member attached to the flexible sheet, a seal member provided at a predetermined position to oppose the valve closing member, and a biasing member urging the seal member in a direction opposing the valve closing member; wherein the valve closing member has an opening communicating the first chamber and the second chamber with each other; wherein the seal member opens or closes the opening as the valve closing member moves accompanied by a deflection of the flexible sheet; wherein the area of the flexible sheet is situated along a circumference of the valve closing member.

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Nevertheless, Usui discloses in Figures 1-7 a differential pressure valve mechanism of an ink supply unit comprising:

- a flexible sheet (1) situated between the first chamber (10) and the second chamber (an unmarked space that has an element 13) and having an area (3) to secure a predetermined level of freedom of deflection (Figure 2);
- a valve mechanism (12, 13) to perform an open-close operation accompanied by a deflection of the flexible sheet (1), the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber (10) and the second chamber (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7) whose undulated form is maintained in at least an operation range of the valve mechanism (12, 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7), the undulated

Art Unit: 2861

portion (7) rising or a sinking toward the first chamber side (10) or second chamber side (an unmarked space that has an element 13) (Figures 1-2B);

- wherein the valve mechanism includes a valve closing member (5) attached to the flexible sheet (2), a seal member (13) provided at a predetermined position to oppose the valve closing member (5), and a biasing member (12) urging the seal member (5) in a direction opposing the valve closing member (5); wherein the valve closing member (5) has an opening (4) communicating the first chamber (10) and the second chamber (an unmarked space that has an element 13) with each other; wherein the seal member (13) opens or closes the opening (4) as the valve closing member (5) moves accompanied by a deflection of the flexible sheet (2) (Figures 1-2B); and
- wherein the area of the flexible sheet (2) is situated along a circumference of the valve closing member (5) (Figures 2A-2B).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Usui into the Kuwabara et al. ink cartridge for the purpose of constituting a membrane valve at a high accuracy of the bending portion that affects elasticity of the membrane valve greatly to adjust the very small change of pressure in an ink cartridge (column 1, lines 44-52).

Claims 1-2 and 4-13 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of Ishinaga et al. (US Pat. 6,854,836) in view of Usui (US Pat. 6,837,575).

Ishinaga et al. disclose in claims 1-4 a liquid container comprising:

- an accommodation portion to define a liquid accommodation space (column 14, lines 1-2);
- a liquid supply portion (liquid supply unit) to supply a liquid accommodated in the accommodation space to an outside (column 13, lines 62-63);
- a mechanism (movable unit) to maintain or expand a volume of the accommodation space (column 13, lines 60-61);



Art Unit: 2861

- a one-way valve (a second one-way valve) to allow an introduction of a gas from the outside into the accommodation space and prevent the liquid and gas from flowing out of the accommodation space to the outside (column 14, lines 54-59); and
- an ink jet cartridge having the ink tank (ink tank) and an ink jet print head (inkjet printhead) to eject ink and by ejecting ink supplied from the ink tank from the ink jet print head (column 14, lines 3-5).

However, Ishinaga et al do not disclose that a flexible sheet situated between the first chamber and the second chamber and having an area to secure a predetermined level of freedom of deflection; a valve mechanism to perform an open-close operation accompanied by a deflection of the flexible sheet, the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber and the second; wherein the area of the flexible sheet is formed with an undulated portion whose undulated form is maintained in at least an operation range of the valve mechanism; wherein the area of the flexible sheet is formed with an undulated portion, the undulated portion rising or a sinking toward the first chamber side or second chamber side; wherein the valve mechanism includes a valve closing member attached to the flexible sheet, a seal member provided at a predetermined position to oppose the valve closing member, and a biasing member urging the seal member in a direction opposing the valve closing member; wherein the valve closing member has an opening communicating the first chamber and the second chamber with each other; wherein the seal member opens or closes the opening as the valve closing member moves accompanied by a deflection of the flexible sheet; and wherein the area of the flexible sheet is situated along a circumference of the valve closing member.

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow

Nevertheless, Usui discloses in Figures 1-7 a differential pressure valve mechanism of an ink supply unit comprising:

Art Unit: 2861

- a flexible sheet (1) situated between the first chamber (10) and the second chamber (an unmarked space that has an element 13) and having an area (3) to secure a predetermined level of freedom of deflection (Figure 2);
- a valve mechanism (12, 13) to perform an open-close operation accompanied by a deflection of the flexible sheet (1), the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber (10) and the second chamber (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7) whose undulated form is maintained in at least an operation range of the valve mechanism (12, 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7), the undulated portion (7) rising or a sinking toward the first chamber side (10) or second chamber side (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the valve mechanism includes a valve closing member (5) attached to the flexible sheet (2), a seal member (13) provided at a predetermined position to oppose the valve closing member (5), and a biasing member (12) urging the seal member (5) in a direction opposing the valve closing member (5); wherein the valve closing member (5) has an opening (4) communicating the first chamber (10) and the second chamber (an unmarked space that has an element 13) with each other; wherein the seal member (13) opens or closes the opening (4) as the valve closing member (5) moves accompanied by a deflection of the flexible sheet (2) (Figures 1-2B); and
- wherein the area of the flexible sheet (2) is situated along a circumference of the valve closing member (5) (Figures 2A-2B).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Usui into the Ishinaga et al. ink cartridge for the purpose of constituting a membrane valve at a high accuracy of the bending portion that affects elasticity of the membrane valve greatly to adjust the very small change of pressure in an ink cartridge (column 1, lines 44-52).

***CLAIM REJECTIONS***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 9 is rejected under 35 USC 102 (e) as being anticipated by Usui (US Pat. 6,837,575).

Usui discloses in Figures 1-7 a differential pressure valve mechanism of an ink supply unit comprising:

- a flexible sheet (1) situated between the first chamber (10) and the second chamber (an unmarked space that has an element 13) and having an area (3) to secure a predetermined level of freedom of deflection (Figure 2);
  - a valve mechanism (12, 13) to perform an open-close operation accompanied by a deflection of the flexible sheet (1), the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber (10) and the second chamber (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7) whose undulated form is maintained in at least an operation range of the valve mechanism (12, 13) (Figures 1-2B).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior arts are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 10-11 are rejected under 35 USC 103 (a) as being unpatentable over Hsieh et al. (US Pat. 6,540,341) in view of Usui (US Pat. 6,837,575).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Hsieh et al. discloses in Figures 1A-2B an ink cartridge comprising:

- an accommodation portion to define a liquid accommodation space (101) (Figure 1A);
- a liquid supply portion (103H) to supply a liquid (ink) accommodated in the accommodation space (101) to an outside (column 3, lines 12-17) (Figure 1A);
- a mechanism (11, 12, 13) to maintain or expand a volume of the accommodation space (101);
- a one-way valve (R1) to allow an introduction of a gas from the outside into the accommodation space (101) and prevent the liquid and gas from flowing out of the accommodation space (101) to the outside (Figure 1A);
- an ink tank (10) accommodating ink (Figure 1A);
- an ink jet cartridge (1) having the ink tank (10) and an ink jet print head (2) to eject ink (Figure 1A, column 3, lines 10-16);
- an ink jet printing apparatus for printing an image by using the ink tank (10) and an ink jet print head (2) to eject ink and by ejecting ink supplied from the ink tank (10) from the ink jet print head (2) (Figures 1A-2A); and

head (2) to eject ink and by ejecting ink supplied from the ink tank (10) from the ink jet print head (2) (Figures 1A-2A); and

- after preparing the liquid container (10) provided with the one-way valve (R1), injecting a liquid into the accommodation portion (101) by a hole (104H) (Figure 1A, column 3, lines 25-26).

However, Hsieh et al. do not disclose a flexible sheet situated between the first chamber and the second chamber and having an area to secure a predetermined level of freedom of deflection; a valve mechanism to perform an open-close operation accompanied by a deflection of the flexible sheet, the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber and the second chamber; wherein the area of the flexible sheet is formed with an undulated portion whose undulated form is maintained in at least an operation range of the valve mechanism; wherein the area of the flexible sheet is formed with an undulated portion, the undulated portion rising or a sinking toward the first chamber side or second chamber side; wherein the valve mechanism includes a valve closing member attached to the flexible sheet, a seal member provided at a predetermined position to oppose the valve closing member, and a biasing member urging the seal member in a direction opposing the valve closing member; wherein the valve closing member has an opening communicating the first chamber and the second chamber with each other; wherein the seal member opens or closes the opening as the valve closing member moves accompanied by a deflection of the flexible sheet; wherein the area of the flexible sheet is situated along a circumference of the valve closing member.

Nevertheless, Usui discloses in Figures 1-7 a differential pressure valve mechanism of an ink supply unit comprising:

- a flexible sheet (1) situated between the first chamber (10) and the second chamber (an unmarked space that has an element 13) and having an area (3) to secure a predetermined level of freedom of deflection (Figure 2);

Art Unit: 2861

- a valve mechanism (12, 13) to perform an open-close operation accompanied by a deflection of the flexible sheet (1), the degree of the flexible sheet deflection conforming to a pressure difference between the first chamber (10) and the second chamber (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7) whose undulated form is maintained in at least an operation range of the valve mechanism (12, 13) (Figures 1-2B);
- wherein the area of the flexible sheet (1) is formed with an undulated portion (7), the undulated portion (7) rising or a sinking toward the first chamber side (10) or second chamber side (an unmarked space that has an element 13) (Figures 1-2B);
- wherein the valve mechanism includes a valve closing member (5) attached to the flexible sheet (2), a seal member (13) provided at a predetermined position to oppose the valve closing member (5), and a biasing member (12) urging the seal member (5) in a direction opposing the valve closing member (5); wherein the valve closing member (5) has an opening (4) communicating the first chamber (10) and the second chamber (an unmarked space that has an element 13) with each other; wherein the seal member (13) opens or closes the opening (4) as the valve closing member (5) moves accompanied by a deflection of the flexible sheet (2) (Figures 1-2B);
- wherein the area of the flexible sheet (2) is situated along a circumference of the valve closing member (5) (Figures 2A-2B).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Usui into the Hsieh et al. ink cartridge for the purpose of constituting a membrane valve at a high accuracy of the bending portion that affects elasticity of the membrane valve greatly to adjust the very small change of pressure in an ink cartridge (column 1, lines 44-52).

It has been held that a recitation “the flexible sheet is formed of a resin member or resin sheet” is the selection of a known material based on its suitability for its intended use and does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham, 2 USPQ2d 1647 (1987)*.

***Citation of Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art references (US Pat. 6,585,358; JP Pat. 2001270129; JP Pat. 55073564) cited in the PTO 892 form show an ink cartridge that is deemed to be relevant to the present invention. These references should be reviewed.

***CONCLUSION***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M. to 7:00 P.M.. The fax number of this Group 2861 is (703) 872-9306.



ANH T.N. VO  
PRIMARY EXAMINER

January 17, 2006